

CLAIMS

1. (amended) A sliding member comprising a substrate and
a hard coating formed on said substrate, wherein said hard
5 coating comprises a nitride-based material containing titanium
nitride and Cr, and having a face-centered cubic crystalline
structure with a lattice constant ranging from 0.414 to 0.423
nm in a crystal of said nitride-based material.

10 2. (cancelled)

3. (amended) A sliding member comprising a substrate and
a hard coating formed on said substrate, wherein said hard
coating comprises a nitride-based material containing titanium
15 nitride and B, and having a face-centered cubic crystalline
structure comprising crystallites of an average size of not more
than 9 nm.

4. (cancelled)

5. (cancelled)

6. (cancelled)

7. (cancelled)

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8. (cancelled)

9. (cancelled)

5 10. (added) A sliding member comprising a substrate and
a hard coating formed on said substrate, wherein said hard
coating comprises a nitride-based material containing titanium
nitride and at least one element selected from the group
10 consisting of Zr and Hf, and having a face-centered cubic
crystalline structure with a lattice constant ranging from 0.414
to 0.423 nm in a crystal of said nitride-based material.

11. (added) A sliding member according to any of claims
1, 3 and 10, wherein said nitride-based material has a chemical
15 composition defined in a formula, excepting inevitable
impurities:

$\text{Ti}_{(100-x)}\text{Me}_x$ nitride compound

where Me represents one element selected from the group
consisting of Cr, Zr, Hf and B, and x is in a range given by
20 a relation:

$2 \text{ atomic } \% \leq x \leq 30 \text{ atomic } \%$.

12. (added) A method for making a sliding member
according to any of claims 1, 3, 10 and 11, comprising the steps
25 of: forming a hard coating on said substrate by simultaneously
depositing in a vacuum Ti and at least one element selected from
the group consisting of Cr, Zr, Hf and B on said substrate while
irradiating said substrate with ion beams containing

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substantially nitrogen ions.

13. (added) A sliding mechanism comprising a combination of a movable member and a static member, wherein
5 either said movable member or said static member is made of a sliding member according to any of claims 1, 3, 10 and 11, or made by a method according to claim 12, and the remaining member is made of a material containing carbon.

10 14. (added) A sliding mechanism according to claim 13, wherein said material containing carbon is a material containing substantially carbon, a material infiltrated with carbon or a thin film containing carbon.

15 15. (added) A sliding member according to any of claims 1, 3 and 10, wherein said substrate is a metal material.

16. (added) A method according to claim 12, wherein said substrate is a metal material.

20 17. (added) A sliding mechanism according to claim 13 or 14, wherein said substrate is a metal material.

25 18. (added) A dressing tool comprising a sliding member according to any of claims 1, 3 and 10, or comprising a sliding member made by a method according to claim 12.

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